

Listing of Claims

1 1. (Original) A caching server comprising:
2 an answer cache configured to access answer information through a flat data
3 structure;
4 a referral cache configured to store referral information; and
5 computer instructions configured to translate a domain name into DNS
6 information by examining the answer cache and, responsive to the results
7 of examining the answer cache, examining the referral cache.

1 2. (Original) The caching server of claim 1, wherein the flat data structure is a hash table.

1 3. (Original) The caching server of claim 1, wherein the flat data structure includes
2 pointers to a tree data structure.

1 4. (Original) The caching server of claim 1, wherein the flat data structure includes
2 pointers to a tree data structure, and the tree data structure is configured to store
3 answer information and referral information.

1 5. (Original) The caching server of claim 1, wherein the flat data structure includes
2 pointers to a tree data structure, and the tree data structure is included in the
3 referral cache.

1 6. (Original) The caching server of claim 1, wherein the caching server is also an
2 authoritative server.

1 7. (Original) The caching server of claim 1, wherein the caching server is also a web
2 server.

1 8. (Original) The caching server of claim 1, wherein the referral cache is further
2 configured to store the referral information in a hierarchical data structure.

1 9. (Original) The caching server of claim 1, wherein the DNS information includes an IP
2 address.

1 10. (Original) The caching server of claim 1, wherein the DNS information includes an
2 MX record.

1 11. (Original) A computer readable medium having stored thereupon computer code
2 configured to determine DNS information associated with a domain name, the
3 computer code comprising:

4 a code segment configured to receive a request for the DNS information
5 corresponding to a domain name;

6 a code segment configured to examine a first cache to find the DNS information,
7 the first cache including a flat data structure and configured to store the
8 DNS information or a pointer to the DNS information; and

9 a code segment configured to initiate a search of a second cache if the DNS
10 information is not found by examining the first cache, the second cache
11 configured to store data referring to further locations on a computer
12 network wherein the DNS information may be found.

1 12. (Original) The computer readable medium of claim 11, wherein the DNS information
2 includes an IP address.

1 13. (Original) A computer network comprising:
2 means for receiving a request for DNS information corresponding to a domain
3 name;
4 means for examining a first cache to find the DNS information, the first cache
5 configured to store the DNS information or a pointer to the DNS
6 information; and
7 means for searching a second cache if the DNS information is not found by
8 examining the first cache, the second cache configured to store data
9 referring to further locations on the computer network wherein the DNS
10 information may be found.

1 14. (Original) The computer network of claim 13, further including means for storing
2 data in the first cache such that a time required to examine the first cache is
3 essentially constant as a function of a number of labels comprising the domain
4 name.

1 15. (Original) The computer network of claim 13, further including means for storing
2 data in the first cache such that a time required to examine the first cache is
3 essentially constant as a function of a size of the first cache.

1 17. (Original) A computer network comprising:

2 a computing system configured to access a component of the computer network

3 using a domain name;

4 a caching server including a first data structure configured for translating the

5 domain name into DNS information, and means for examining the first

6 data structure in a time that is essentially constant as a function of a

7 number of labels comprising the domain name; and

8 a second data structure configured for translating the domain name into DNS

9 information.

1 18. (Original) The computer network of claim 17, wherein the DNS information includes
2 an IP address or an MX record.

- 1 19. (Original) A method of determining DNS information, the method comprising:
 - 2 receiving a request for DNS information corresponding to a domain name;
 - 3 examining an answer cache for answer information, the answer cache including a
 - 4 hash table configured to store the answer information or to store a pointer
 - 5 to the answer information; and
 - 6 searching a tree data structure if the DNS information is not found by examining
 - 7 the answer cache.

1 20. (Original) The method of claim 19, wherein the hash table is configured to store the
2 pointer to the answer information.

1 21. (Original) The method of claim 19, wherein the answer cache does not include a tree
2 data structure.

1 22. (Original) The method of claim 19, wherein the tree data structure is configured to
2 store referral data and is included in a referral cache.

1 23. (Original) The method of claim 19, wherein the tree data structure is configured to
2 store pointers to referral data.

1 24. (Original) The method of claim 19, wherein the DNS information includes an IP
2 address.

1 25. (Original) The method of claim 19, wherein the hash table is configured to store the
2 answer information.

1 26. (Original) A method of determining DNS information, the method comprising:
2 receiving a request for DNS information corresponding to a domain name;
3 examining an answer cache to find answer information, responsive to the received
4 request, the answer cache including a flat data structure; and
5 responsive to the examination of the answer cache, searching a referral cache.

1 27. (Original) The method of claim 26 wherein the flat data structure is configured to
2 store the answer information.

1 28. (Original) The method of claim 26, wherein the flat data structure is configured to
2 store a pointer to the answer information.

1 29. (Original) The method of claim 26, wherein the flat data structure is a hash table.

1 30. (Original) The method of claim 26, wherein a time required to examine the answer
2 cache is essentially constant as a function of a number of labels comprising the
3 domain name and essentially constant as a function of a size of the answer cache.

1 31. (Original) The method of claim 26, wherein the referral cache includes a hierarchical
2 data structure.

1 32. (Original) The method of claim 26, wherein the DNS information includes an IP
2 address.

1 33. (Original) A method of storing data in a cache, the method comprising:
2 requesting DNS information;
3 receiving data in response to the request;
4 classifying the response received; and
5 storing the data received in either a referral cache or an answer cache based on the
6 classification.

1 35. (Original) The method of claim 33, wherein the answer cache includes a hash table.

1 37. (Original) The method of claim 33, wherein the DNS information includes a
2 numerical address.

1 38. (Original) The method of claim 33, wherein the answer cache is configured to store
2 answer information and the referral cache is configured to store referral
3 information.

1 39. (Original) The method of claim 33, wherein the answer cache is configured to store
2 answer information and the referral cache is configured to store referral
3 information, and the answer cache and the referral cache have different data
4 structures.

- 1 40. (Original) A method of caching DNS information, the method comprising:
 - 2 requesting DNS information;
 - 3 receiving data in response to requesting DNS information;
 - 4 classifying the response received as an answer response or a referral response;

5 storing the response received in either a referral cache or an answer cache based
6 on the classification, the answer cache including a flat data structure;
7 receiving a request for DNS information corresponding to a domain name;
8 examining the answer cache to find answer information, responsive to the
9 received request; and
10 responsive to the examination of the answer cache, searching the referral cache.

1 41. (Original) The method of claim 40, wherein the referral cache includes a hierarchical
2 data structure.

1 42. (Original) The method of claim 40, wherein the received request for DNS information
2 includes a request for an IP address.